

Claims

1. The use of phenylcoumaran benzylic ether reductase to modulate plant biomass.
2. The use according to claim 1, whereby said phenylcoumaran benzylic ether reductase comprises SEQ ID N° 2
- 5 3. The use according to claim 1 or 2, whereby said use is a repression of the activity of phenylcoumaran benzylic ether reductase.
4. The use according to claim 3, whereby said repression of the activity is obtained by cosuppression RNAi.
5. The use according to claim 3, whereby said repression of the activity is obtained by
10 antisense RNA.
6. The use according to any of the claims 1-5, whereby said modulation is an increase of plant biomass
7. The use according to claim 6, whereby said increase of plant biomass is an increase in plant stem biomass
- 15 8. The use according to claim 6 or 7, whereby said increase of biomass is combined with a lower lignin content.
9. The use according to claim 6 or 7, whereby said increase is combined with a higher resistance to plant pathogens.
10. The use according to any of the preceeding claims, whereby said plant is a tree.
- 20 11. The use according to claim 10, whereby said tree is a poplar tree.
12. The use according to any of the preceding claims, whereby said plant is grown under elevated CO₂ concentration
13. A method to modulate plant biomass, comprising the incorporation into the plant genome of a recombinant nucleic acid encoding a phenylcoumaran benzylic ether
25 reductase, or its complement, or a functional fragment thereof.
14. The method of claim 13, whereby said modulation is obtained under elevated CO₂ concentration.
15. A genetically modified plant, obtainable by the method of claim 13 or 14.
16. A genetically modified plant according to claim 15, expressing phenylcoumaran
30 benzylic ether reductase antisense RNA.
17. A genetically modified plant according to claim 15, expressing phenylcoumaran benzylic ether reductase RNAi.
18. A genetically modified plant according to claim 15-17, whereby said plant has an increased biomass.
- 35 19. A genetically modified plant according to claim 18, whereby said increased biomass is increased stem biomass.

20. A genetically modified plant whereby according to any of the claims 15-19, whereby said increased biomass is obtained under elevated CO₂ concentration.

21. A genetically modified plant, according to any of the claims 15-20, whereby said plant has a lowered lignin content.

5 22. A genetically modified plant, according to any of the claims 15-21, whereby said plant has an increased resistance to plant pathogens.

23. A genetically modified plant according to any of the claims 15-22, whereby said plant is a tree.

24. A genetically modified plant according to claim 23, whereby said plant is a poplar tree.

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